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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/426,644 10/25/99 MOON

J 1349.1022/MD

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QM12/0104

EXAMINER

TUGBANG, D

ART UNIT

PAPER NUMBER

3729

DATE MAILED: 01/04/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.

09/426,644

Applicant(s)

Moon et al

Examiner

A. Dexter Tugbang

Group Art Unit

3729

☒ Responsive to communication(s) filed on Oct 10, 2000

☐ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

☒ Claim(s) 1-36 is/are pending in the application.

Of the above, claim(s) 3-12, 14-16, 18, 20, 22, 25, 26, 28, 29, and 32-36 is/are withdrawn from consideration.

☒ Claim(s) 13 is/are allowed.

☒ Claim(s) 1, 2, 17, 19, 21, 23, 24, 27, 30, and 31 is/are rejected.

☐ Claim(s) _____ is/are objected to.

☐ Claims _____ are subject to restriction or election requirement.

Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☒ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☒ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been

☒ received.

☐ received in Application No. (Series Code/Serial Number) _____.

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☒ Notice of References Cited, PTO-892

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____

☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

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DETAILED ACTION

Election/Restriction

1. Applicant's election with traverse of the invention of Group I, Species A, in Paper No. 8 (dated 9/12/00) is acknowledged. The traversal is on the ground(s) that there would be no undue burden on the Examiner to search the inventions of Groups I, II, as well as Species A-E. This is not found persuasive because the Examiner has demonstrated that in Paragraphs 2 and 3 of Paper No. 8, the inventions of Groups I and II each clearly have different classifications, each requiring different searches. With respect to the Election of Species requirement, Claims 1, 13, 17, 27 and 31 may be generic. However, the different grouping of Figures (set forth in Paragraph 5 of Paper No. 8) as disclosed by the Applicant are each patentably distinct from one another because the search for one Species would not be required in the other Species, even if there was only one manufacturing process disclosed as the Applicants allege. Therefore, examination of the independent inventions herein would clearly present a burden because the searches, as described above, will not be coextensive. Species A-E will all be combined if Applicants stipulate that they are obvious over each other.

The requirement is still deemed proper and is therefore made FINAL.

2. Claims 3-12, 14-16, 18, 20, 22, 25, 26, 28, 29 and 32-36, have been withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in Paper No. 9.

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Specification

3. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.
4. The following title is suggested: A Process of Manufacturing Fluid Jetting Apparatuses.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 1, 2, 17, 19, 21, 23, 24, 27 and 30 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In each of Claims 1, 17 and 27, it is unclear from the disclosure what is meant by the recitation of "a spinning process" and what this "spinning process" encompasses.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

8. Claims 1, 2 and 31, as best understood, are rejected under 35 U.S.C. 102(a) as being anticipated by the Applicants Admitted Prior Art (AAPA).

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The AAPA, as described in the *Background of the Invention* (specification, pages 1-3) and Prior Art Figures 1 and 2, discloses the claimed manufacturing process comprising: forming a nozzle part 30 having electrodes 13 and heating elements 14 on a silicon wafer 11; forming driving fluid barriers 15 and driving fluid chambers 33; and adhering a membrane 20 to the nozzle part and a heat driving part 10 thereby forming a fluid jetting apparatus.

With respect to the "spinning process", this limitation is broadly read as the conventional roll method (shown in Prior Art Fig. 2) since the feeding reel 51 and take up reel 52 are rolling or spinning.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 17 and 19, as best understood, are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Leban 5,229,785.

With regards to Claims 17 and 19, Leban discloses the claimed manufacturing method comprising: forming a nozzle part on a wafer (dummy substrate 10); adhering the nozzle part with the wafer to a membrane (layer 12); removing the wafer from the nozzle part (see Fig. 1H); adhering the membrane to a heat driving part (heater element 36); forming a nozzle plate 14 on a first substrate 34 in which both of the elements constitute the nozzle part; forming jetting fluid

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barriers (layer 22) on the nozzle plate; forming jetting fluid chambers 32 within the jetting fluid barriers; forming a first reinforcement element (additional layer 52 shown in the embodiment of Fig. 3C); and forming nozzles 20 in the nozzle plate. The “spinning process” is broadly read as the nozzle plate 14 of the nozzle part being formed by a coating technique of spinning or spraying (discussed at col. 4, lines 56-61).

With regards to the wafer being of a “silicon” material or a “silicon wafer”, this material limitation is not considered to be patentably further limiting as to the claimed manufacturing process. However, if the Applicants believe that a “silicon wafer” is patentably further limiting, then forming the wafer material of Leban with silicon would have been obvious to one of ordinary skill in the art at the time the invention was made, since it is conventional, old and notoriously well known in the electrical manufacturing arts to form wafer material of silicon or of a silicon material composition.

11. Claims 17, 23, 27 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Pan 4,894,664 in view of Leban.

Pan discloses the claimed manufacturing method comprising: forming a nozzle part on a first substrate of a dielectric wafer (slab 56); forming a membrane (beam 12) on a second substrate of silicon wafer (insulating layer 21); forming a heat driving part by forming electrodes (conductive layers 27) and heat elements (resistors 21) on a third substrate of silicon wafer 10; adhering the nozzle part to the membrane and the membrane to the heat driving part (result shown in Fig. 3); removing the first dielectric wafer (discussed at col. 4, lines 5-12); and forming driving fluid barriers (layer 40) and driving fluid chambers (open areas between beams 12 in Fig. 3).

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With regards to the first substrate wafer being of a “silicon” material or a “silicon wafer”, this material limitation is not considered to be patentably further limiting as to the claimed manufacturing process. However, if the Applicants believe that a “silicon wafer” is patentably further limiting, then forming the wafer material of Pan with silicon would have been obvious to one of ordinary skill in the art at the time the invention was made, since it is conventional, old and notoriously well known in the electrical manufacturing arts to form wafer material of silicon or of a silicon material composition.

Pan does not teach that the nozzle part is formed by a spinning process.

Leban teaches that patterning layers of dielectric material can be achieved by a spinning or spraying process to form a desired material thickness (discussed at col. 4, lines 56-62).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have formed the nozzle part of Pan, with the spinning process of Leban, to positively form a nozzle part with a desired material thickness and pattern.

Allowable Subject Matter

12. Claim 13 is allowed.

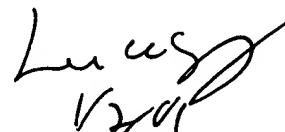
13. Claims 21 and 24 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

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Conclusion

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dexter Tugbang whose telephone number is (703) 308-7599.



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ADT

December 31, 2000